



Computational Modeling Monterey Formation A1-A2 Pressure

The Monterey Formation 26R reservoir has been depleted by oil and gas production. Currently the pressure of the reservoir is estimated to be 150 PSI at a datum of 5,630 ft TVD below Mean Sea Level (MSL). The final average reservoir pressure will be at or below the initial reservoir conditions (3,250 PSI).

Critical Pressure Calculation

Using the equation below, and assuming the Upper Tulare has been saturated and is at normal pressure, the critical pressure for the Monterey Formation 26R reservoir is about 2,651 PSI for the project area.

$$P_{i,f} = \frac{\rho_i}{\rho_u} P_u + g\rho_i(Z_i - Z_u)$$

Where,

$P_{i,f}$ – Injection zone Pressure

P_u – Base of USDW zone pressure, (assuming normally pressured, 217 psi or 1,498,686 Pa)

ρ_i – injection zone brine density, 1017 kg/m³

ρ_u – USDW zone water density, 1003 kg/m³

Z_i – Injection zone depth 6014 ft TVD or 1833 m TVD

Z_u – Base of USDW zone depth, 502 ft TVD or 153 m TVD

g – acceleration due to gravity, 9.81m/s²

Summary of AoR

The final pressure of the Monterey Formation 26R reservoir will be at or below the initial reservoir pressure to ensure that CO₂ occupies the same pore space that was initially saturated with hydrocarbons and the pressure front is at equilibrium with initial conditions. As such, CTV defines the AoR as the aerial extent of the CO₂ plume.